UAS and SmallSat Weekly News

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COULD NODES AND DRONES BE THE FUTURE OF WATER CONSERVATION? MATT WEISER

A conversation with a biology professor about how technology could provide new insights into complex water systems.

 The Gordon and Betty Moore Foundation has awarded a $2.2 million grant to the University of California to use remote sensors and drones to monitor hydrology across various landscapes. The subject areas will be the U.C.'s Natural Reserve System, a network of protected lands covering more than 750,000 acres and representing many habitat types in the state.

Called the California Heartbeat Initiative-Freshwater, the project will equip reserves with wireless sensor nodes to track weather, soil moisture, transpiration, and a host of other criteria. Each node, about the size of a thermos, is outfitted with a battery and solar panel. They communicate wirelessly with each other and a central computer. Drones will fly programmed routes with special cameras attached to monitor how vegetation changes with the climate.

The overarching goal is to link the wealth of data from the sensors with climate shifts. Ultimately, this will help create finer-grained climate models to predict how landscapes might change in the future. If this can be expanded across the state, it could help officials plan ways to reduce the impact of drought and other stressors on habitats, agriculture, and urban environments.

To learn more about the project, Water Deeply recently interviewed Todd Dawson, the lead investigator and a biology professor at the University of California—Berkeley. See the interview at https://psmag.com/environment/technology-is-the-key-to-water-conservation

Flying 3D-printer concept gets off the ground in Shanghai Paul Ridden March 2nd, 2018

DediBot – a 3D printer manufacturer out of Hangzhou, China – has created quite a buzz in Shanghai this week with the launch of something it's calling the Fly Elephant. The prototype that took flight at the company's booth at the TCT Asia trade show is no ordinary multi-rotor drone, but features an extruder that can be used for rapid prototyping of large structures.
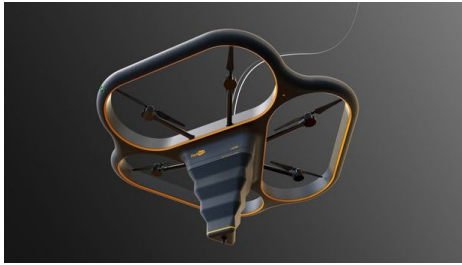
The Fly Elephant 3D printing drone would be fed printing materials through a tube at the top, to be extruded through the nozzle at the bottom

Under the six rotor cage of the Open-ended Additive Manufacturing (OAM) drone hangs a 3D printing nozzle that's fed plastic, concrete mix or other material from a tube connected to the top of the OAM Fly Elephant. The drone's printing path will be precisely plotted by software, for a promised printing accuracy of 0.1 mm.

The 3D printing drone flying around the company's booth at TCT Asia is showcasing its potential applications in the construction industry, with the free-flying design meaning that the size and shape of printed structures are not restricted by the dimensions of a static 3D printer's enclosure.

Construction projects could be undertaken by a cluster of 3D printing drones working together, possibly with drones each extruding different materials for a kind of multiple print head approach to structure builds. Of course, short battery life may well limit the potential usefulness of such technologies so DediBot is looking to wireless power solutions to give the drones potentially unlimited air time on the construction site. https://newatlas.com/dedibot-fly-elephant-3d-printing-drone/53643/

Making Heads or Tails of Flying a Drone Over U.S. Public Lands **Steve Cullen**

In an article that I published a few weeks ago on Fstoppers, I included an image I captured above White Pocket in northern Arizona. One of our readers commented that he thought it was illegal to fly a drone in the Vermilion Cliffs National Monument. In fact, it is not. If you are a drone owner, you are likely aware that you cannot take off or land from any public lands managed by the National Park Service.

Many National Monuments and other public lands are managed by the National Park Service, but the Vermilion Cliffs National Monument is managed by the Bureau of Land Management. Since the Bureau of Land Management allows recreational drone use on most of the lands it manages, I was good to fly. Wouldn't it be nice if there was a hard and fast rule for all of us that says you cannot take off or land on public lands managed by the National Park Service, but you are free to fly on lands managed by the Bureau of Land Management? Unfortunately, it isn't quite that cut and dry. Spending a few minutes to better understand the rules can potentially

save you from a big fine or even jail time. Let's dig a little deeper:
https://fstoppers.com/aerial/making-heads-or-tails-flying-drone-over-us-public-lands-226124

The Navy wants lasers to blow drones out of the sky 03.02.18

Artist's rendering of Lockheed Martin's HELIOS system.

The U.S. Navy just awarded Lockheed Martin $150 million to make their wish for drone-blasting lasers a reality. The military branch is becoming increasingly concerned that enemies could use small drones to surveil their ships or even attack them, which is why it wants Lockheed to develop "directed-energy" (aka laser gun) counter-measures, reports *Bloomberg*. The laser array, called HELIOS (High Energy Laser and Integrated Optical-dazzler with Surveillance), would track drones that approach ships and either blow them out of the sky or disable any cameras on the drone with its bright "spotlight" effect.
https://www.fastcompany.com/40538512/the-navy-wants-lasers-to-blow-drones-out-of-the-sky

Family had a girl missing in the dark; Moore County sheriff had a drone. Case closed. RON GALLAGHER *rgallagher@newsobserver.com* March 02, 2018

JACKSON SPRINGS, NC - Launching a drone equipped with an infrared camera that can see heat images, Moore County sheriff's deputies made short work Thursday night of what could have been a nightlong search for a missing 11-year-old child.

The drone picked up a "heat signature" in woods across a road from the girl's home 15 minutes after Lt. Tim Davis launched it, and he guided deputies on foot to the spot, Sheriff Neil Godfrey said Friday. The girl was found asleep under brush and heavy limbs, Godfrey said. She was "a little cold and wet," but otherwise unharmed, Rodriguez said.

"This is a perfect example of why we invested in this drone capability," Godfrey said. The basic Matrice 200 drone is priced at about $5,300 on Amazon. Moore County's drone has infrared and conventional cameras and GPS positioning. With the night search, Rodriguez said, the deputies looking for the girl were in the area the drone could "see." They showed up on the camera as well as the girl, and Davis could direct them by radio toward where he was seeing her. http://www.newsobserver.com/news/local/article203062254.html

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Are We Happy Moving Towards A Future With Permanent 'Eyes in the Sky'? March 4, 2018 Feilidh Dwyer

 French company Elistair (and others) envision a future where drones stay in the sky permanently. They specialize in developing tethered stations for civilian which dramatically increase the time a drone can stay in flight. Currently their tethered drones have a flight time of "up to 10 hours and more" but they are eventually aiming for drones that never come down to land. Some of their main clients are law enforcement, national security, emergency communications and crisis management teams.

While one can see why permanent eyes in the sky is advantageous for a number of authorities, particularly during natural disasters or emergencies, a network of all-seeing eyes in the sky is not a desirable future societies should be comfortable pursuing.

 Technological innovations spanning the last few decades have, on the one hand, granted us amazing new possibilities but simultaneously eroded our privacy and mined into our personal data. There will be those out there who see this as no big deal or just an inevitability of the technology.

What can protect the public from unwanted monitoring is strong legislation, safeguards and independent oversight. There has already been plenty of legislation drafted in the United States. With the technology rapidly developing, we are likely to see plenty more rules put in place in the near future. If you do not feel comfortable with the idea of this type of future, let your public representative know about it. https://www.wetalkuav.com/are-we-happy-moving-towards-a-future-with-permanent-eyes-in-the-sky/2/

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Porsche Could Build Flying Taxis, Says Sales Chief REUTERS MARCH 3, 2018

FRANKFURT — Volkswagen's sports car maker Porsche could develop a flying passenger vehicle to compete with rivals in a possible market for urban air taxis and ride-sharing services, Porsche sales chief Detlev von Platen told a German magazine.

Volkswagen's auto designer Italdesign and Airbus at last year's Geneva auto show presented a two-seater flying car, called Pop.Up, designed to avoid gridlock on city roads.

The magazine said that under Porsche's plans, passengers would be able to have some control over the flying vehicle themselves but would not need a pilot license because many of the car's functions would be automated.

Potential competitors to a flying vehicle made by Porsche would be German start-ups Volocopter, backed by Daimler, Lilium Jet and eVolo, as well as U.S.-based Terrafugia and California-based Joby Aviation. https://www.nytimes.com/reuters/2018/03/03/business/03reuters-autos-flying-taxis-porsche.html

Police at the Commonwealth Games will use anti-drone guns on rogue 'copters Harry Domanski

Police in the state of Queensland have made a deal with DroneShield in order to secure the Australian company's signature drone-blocking guns for use at this year's Commonwealth Games.

The rifle-esque drone blocker that DroneShield offers (the aptly named DroneGun) has already been successfully employed at events such as the Boston Marathon (for three years running), and the Iron Man World Championships.

The gun has a range of 2km and functions by jamming the transmission between the remote control and the unit itself. This disables the video footage and forces the 'copter to 'return to home' or perform a controlled landing. https://www.techradar.com/news/police-at-the-commonwealth-games-will-use-anti-drone-guns-on-rogue-copters

UMKC awarded $7.2 million grant for anti drone technologies MARA WILLIAMS
mdwilliams@kcstar.com March 02, 2018

A black, 5-foot drone buzzed over The Quad on the University of Missouri-Kansas City campus Friday morning when officials announced that the school had won nearly $15 million in federal funding to research and develop counter-drone technologies.

The money is from the Office of Naval Research. It came in the form of a four-year, $7.2 million fundamental research grant and a $7.7 million implementation contract to UMKC for researchers there and elsewhere in the University of Missouri System.

With the grants, the university is to develop technologies to reduce national security threats from small, unmanned aerial vehicles. This funding is the largest non-health federal research

grant in the history of UMKC, which is the lead institution on the project. http://www.kansascity.com/news/article203092134.html

Citadel Closes $12M Series A Funding USA *February 27, 2018*

Citadel Defense Company, a San Diego, CA-based provider of a drone defense platform, secured $12m in Series A financing.

The round was funded by Lightspeed Venture Partners and led by partners John Vrionis and Larsen Jensen. The company intends to use the funds to advance its technology, accelerate product growth, and extend sales capabilities.

Citadel delivers a proprietary counter drone system to clear skies of unauthorized drones, with applications including helping keep US soldiers, critical infrastructure and soft targets safe. The company has six current military and government clients, including the United States Department of Defense, the Defense Innovation Unit-Experimental (DIUX) and the Special Operations Communities. http://www.finsmes.com/2018/02/citadel-closes-12m-series-a-funding.html

Report: UAS Industry Will Hit $30 Billion by 2036 Mark Phelps February 27, 2018

Future unmanned aerial systems, such as the 500-pound-capacity cargo drone under development at Boeing, represent a large part of the envisioned future aviation industry, according to a new report.

A study released today flags 2036 as the year unmanned aerial systems will have grown to represent a $30 billion industry. The Aerospace Industries Association, in partnership with market intelligence specialist Avascent, compiled the report, "Think Bigger: Large Unmanned Systems and the Next Major Shift in Aviation." According to the report, cargo and passenger service will represent a large portion of the UAS industry nearly two decades from now, and it will support up to 60,000 jobs in research, manufacturing and service.

AIA president and CEO Eric Fanning warned, "The biggest barrier to growth is the regulatory framework. Global competitors are working to seize the market from the United States, the country that invented this technology. We must start now on certification standards, exports, and spectrum to ensure [the opportunities] stay American." https://www.ainonline.com/aviation-news/aerospace/2018-02-27/report-uas-industry-will-hit-30-billion-2036

Recommendations for maintaining U.S. leadership in this developing market include codifying near-term needs for detect-and-avoid operations, autonomous certification and spectrum allocation; international harmonization of regulations and performance-based consensus standards; and modifications of civilian UAS-related export and trade restrictions.
https://www.ainonline.com/aviation-news/aerospace/2018-02-27/report-uas-industry-will-hit-30-billion-2036

Agribotix Partners With Frenchman Valley Coop to Deliver Drone Data to Growers March 1, 2018 Mapping and Surveying | News

Frenchman Valley Coop has deepened its partnership with Agribotix™. This season the coop is expanding its existing drone survey program for their growers.

In February and March, Frenchman Valley will be surveying their growers' winter wheat to see where emergence is strongest and where it needs a boost. For their growers who will soon be planting corn, soybeans and other crops, this time of year is excellent for surveying bare fields to see where they'll need more or less herbicide and other inputs before they plant, making sure that soil is in the best possible shape for the highest potential yields. Looking at soil color displayed in drone images, growers and their agronomists can see where they want to take soil samples.

http://uasweekly.com/2018/03/01/agribotix-partners-frenchman-valley-coop-deliver-valuable-drone-data-growers/

Edgybees raises $5.5M to bring better AR to cars and drones *Feb 28, 2018 by Frederic Lardinois*

It's one thing to dispatch a drone when an accident happens to get an aerial overview of what's happening on the ground, but you get far better situational awareness if you can use augmented reality (AR) to add the names of roads, the location of key personnel, cars and other assets to that view. That's what Edgybees, a Santa Clara-based startup that current specializes in AR for drones, offers first responders. Its system has already been used by emergency teams during the Northern California wildfires and hurricane floods in Florida.

The company today announced that it has raised a $5.5 million seed funding round that includes Motorola Solutions Venture Capital, and Verizon Ventures, as well as 8VC, NFX, Aspect Ventures and Israeli crowdfunding platform OurCrowd.

The company plans to use the new funding to bring its existing AR technology, which I recently saw in action during a drone demo with Israel's volunteer first responder organization United Hatzalah in Jerusalem, to other platforms and to enter new verticals. These include defense, smart cities, automotive and broadcast media. https://techcrunch.com/2018/02/28/edgybees-raises-5-5m-to-bring-better-ar-to-cars-and-drones/

Johns Hopkins University, SolAero partner on solar wing design February 27, 2018

SolAero Technologies Corp. (SolAero), a provider of solar cells and composite structural products for aerospace applications, has won a contract from Johns Hopkins University Applied Physics Laboratory (APL) to develop an integrated solar wing for the AeroVironment Puma unmanned aerial system (UAS). Fabricated with solar cells integrated onto a composite structure, the solar wing has the same form, fit, function, and mass equivalent to the standard wing on the Puma. The solar wing will enable extended range, increased payload, and enhanced persistence in multiple scenarios. Flight testing and field validation will be performed in early 2018. http://www.aerospacemanufacturinganddesign.com/article/johns-hopkins-university-solaero-partner-on-solar-wing-design/

AirMap and skyguide partner to bring UTM services to Switzerland March 5, 2018

Philip Butterworth-Hayes UAS traffic management news

AirMap has announced that it has partnered with skyguide, the Swiss air navigation service provider, to develop and deploy a national drone traffic management system for Switzerland.

"Switzerland is home to a thriving community of drone companies, including senseFly, maker of the Albris and eBee mapping drones. The country also hosts the world's first autonomous drone delivery network, located in Zürich. Since 2013, drone flight requests at skyguide have multiplied tenfold," said AirMap in a press release. "We're looking forward to supporting this growing ecosystem by building the infrastructure pilots need to safely, efficiently, and easily access the airspace. Swiss U-space will include sophisticated services for drones and others who share the airspace, including dynamic geofencing, instant

digital airspace authorization, solutions for situational awareness, and more – powered by the AirMap UTM platform." http://www.unmannedairspace.info/uncategorized/airmap-skyguide-partner-bring-utm-services-switzerland/

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Drone Helps Scientists Discover Massive Penguin Fleet Betsy Lillian March 5, 2018

In a paper released on March 2 in the journal *Scientific Reports*, scientists announced the discovery of a previously unknown "supercolony" of more than 1.5 million Adélie Penguins in the Danger Islands – a chain of remote, rocky islands off the Antarctic Peninsula's northern tip.

In 2014, Lynch and colleague Mathew Schwaller from NASA discovered telltale guano stains (i.e., seabird excrement) in existing NASA satellite imagery of the islands – hinting at a mysteriously large number of penguins. To find out for sure, Lynch teamed with Stephanie Jenouvrier, a seabird ecologist at WHOI, Mike Polito at Louisiana State University (LSU) and Tom Hart at Oxford University to arrange an expedition to the islands with a goal of counting the birds firsthand.

The team used a modified commercial quadcopter to take images of the entire island from above. "The drone lets you fly in a grid over the island, taking pictures once per second. You can then stitch them together into a huge collage that shows the entire landmass in 2D and 3D".

"It's unbelievable. We knew the colony existed, but we didn't know how big it was," says Singh. He adds, "As soon as we did the first run, it became very obvious that counting penguins this way was more efficient than anything else we've ever thought of." Northeastern notes that the supercolony – which comprises 751,527 penguin pairs – includes the third- and fourth-largest Adélie penguin colonies in the world. https://unmanned-aerial.com/drone-helps-scientists-discover-massive-penguin-fleet?utm_medium=email&utm_source=LNH+03-06-2018&utm_campaign=UAO+Latest+News+Headlines

Property Drone Consortium to Advance Research by Flying at Night Betsy Lillian March 5, 2018

The Property Drone Consortium (PDC), a collaboration of insurance carriers, roofing stakeholders and supporting enterprises, has been granted a Federal Aviation Administration (FAA) waiver for conducting drone flights at night.

PDC says its members work together to promote research and development and the assessment of regulations for the use of small unmanned aircraft system technology across the insurance and construction industries.

"Flying at night allows for testing of various sensors and developing operating experience that could potentially come into play in post-catastrophic situations."

Founding member companies include Allstate Insurance, American Family Insurance, Auto-Owners Insurance, EagleView Technologies, Erie Insurance and Pilot Catastrophe Services Inc. Technology members include the Insurance Institute for Business & Home Safety, Texas Windstorm Insurance Association, and the Rochester Institute of Technology. The National Roofing Contractors Association is an honorary member. https://unmanned-aerial.com/property-drone-consortium-advance-research-flying-night?utm_medium=email&utm_source=LNH+03-06-2018&utm_campaign=UAO+Latest+News+Headlines

Kespry Drone Platform Gives Midwest Roofing Company 'Game-Changing' Inspections Betsy Lillian March 2, 2018

Roofing Annex, a roofing company in the Midwest, has chosen the Kespry drone platform to enhance preventative building maintenance and property protection.

The Cincinnati-based contractor is using Kespry technology for assessing and protecting building envelopes – which refers to key structural elements such as roofs, skylights, ventilation and rooftop drainage.

"Kespry enables us to give our customers an unbiased, thoroughly detailed report on their roof in a fraction of the time a conventional and potentially damaging inspection would take," comments Phil Pratt, commercial consultant for the roofing company's multifamily and commercial division. "The speed, efficiency and accuracy that Kespry brings is game-changing."

"In the past, using conventional methods, inspecting a multifamily complex could have taken anywhere from three to five days," says Pratt. "Now, using the Kespry system, we're able to complete the same inspections with full reporting in just a few hours."

According to Kespry, another key benefit of the system is eliminating the need for dangerous manual inspections, involving employees on top of roofs. https://unmanned-aerial.com/kespry-drone-platform-gives-midwest-roofing-company-game-changing-

Boeing Launches New Unmanned Systems Program in Australia 01 Mar 2018 | Caroline Rees

Boeing has announced that it has launched its largest autonomous systems development program outside of the United States in Australia following a new partnership agreement with the Queensland Government. Over the next three years, the rapid innovation program will see Boeing develop next-generation autonomous systems capability in Australia to increase the independent operation of unmanned air and sea vehicles.

 "Boeing will work with small-to-medium sized Queensland businesses to develop transformative 'brain-on-board' technology. "The 131 jobs that will come with this autonomous vehicles program will grow Boeing's Queensland workforce."

Boeing's first Advance Queensland partnership with the Queensland Government has been successful. The broad area UAS situational awareness system developed by Boeing in partnership with Queensland businesses was exported to the United States in late 2017 and successfully completed its first flight test in Mississippi in January 2018. http://www.unmannedsystemstechnology.com/2018/03/boeing-launches-new-unmanned-systems-program-australia/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=cf3c5497be-eBrief_2018_Mar_06&utm_medium=email&utm_term=0_6fc3c01e8d-cf3c5497be-119747501

Europe's First Drone Traffic Management System Is Coming Soon March 6, 2018 Feilidh Dwyer

 In September 2017, Airmap, a small US-based startup joined forces with Skyguide, a Swiss-based company. Together they launched U-space, a digital infrastructure to enable situational awareness, data exchange, and digital communication for millions of drones in European skies.

How exactly does it work?

U-space allows drone users to track the movement of their own and other drones in a particular area. One fills out some online forms and using the registry system, they authenticate and verify your identity as the pilot of a particular craft. You include your email address and telephone number.

The maps will automatically display the local flight rules to users, highlighting which areas are free to fly in (areas in green) and which areas are off-limits (displayed in red). Users can easily request flights in restricted areas or simply map out their intended flight plan.

U-space allows air traffic controllers to contact drone pilots digitally using an administrative dashboard. The app will also provide traffic alerts of nearby manned and unmanned aircraft and warnings if drones get too close to other flying craft with alerts sent via onscreen notifications and SMS.

Skyguide and AirMap will be ready to deploy a fully operational drone traffic management system in 2019 and it will likely be coming to the US before too long. https://www.wetalkuav.com/europes-first-drone-traffic-management-system/

Hurricane Tracker UAS Wins Laureate Award 02 Mar 2018 | Author: Caroline Rees

Raytheon Company and the National Oceanic and Atmospheric Administration (NOAA) have announced that they have received Aviation Week magazine's Laureate award for using the Raytheon Coyote unmanned aerial vehicle to provide near-real-time, potentially life-saving data during hurricanes.

Developed for the military, Coyote is a small, expendable UAV that is air- or ground-launched into environments too dangerous for manned aircraft. The system can fly for more than an hour and up to 50 miles from its host aircraft.

Last year, NOAA researchers deployed six Coyote UAVs to track and model Hurricane Maria. Coyote's winged design allowes it to linger and return to key areas of a hurricane to gather more data and transmit it near-real-time to researchers.

"We think unmanned technologies that explore dangerous and difficult to observe regions of the storm may improve our physical understanding, provide enhanced situational awareness

and might ultimately improve the accuracy of hurricane intensity forecasts in the future," said Dr. Joseph Cione, a hurricane researcher at NOAA's Atlantic Oceanographic and Meteorological Laboratory. "The Coyotes we deployed in Hurricane Maria collected critical, continuous observations in the lower part of the hurricane, an area impossible to reach with manned aircraft." http://www.unmannedsystemstechnology.com/2018/03/hurricane-tracker-uas-wins-aviation-week-award/?utm_source=Unmanned+Systems+Technology+Newsletter&utm_campaign=cf3c5497be-eBrief_2018_Mar_06&utm_medium=email&utm_term=0_6fc3c01e8d-cf3c5497be-119747501

Drones are being used to ward off elephants because they sound like bees! March 6, 2018 Thomas Luna

Researchers at Oxford University have formally identified bees as an effective deterrent against crop-raiding elephants, so park rangers started using drones, which simulate a swarm of bees, to ward off the large mammals. African elephants in places like Kenya are known to trample on crops and cause food shortages. Electric fences can be expensive, and poisoning or shooting elephants can be problematic for the environment in the long run, so the simple yet effective honeybee is seen as an answer to the elephant problem because honeybees terrify elephants. Drones are notoriously known for their bee-like noises, and while they are considered a nuisance to some, they are now seen as an effective tool for combating trespassing elephants.

According to a New York Times article, elephants are afraid of being stung in sensitive areas such as the trunk, mouth and eyes. In a Atlantic article, researchers from Duke University also noticed that elephants became agitated when population monitoring drones flew "25 feet to 300 feet" above them; some elephants ran away, and even one elephant hurled mud towards a drone.

Snapshots from PBS Newshour's YouTube video.

There is an ongoing debate over drone noise and privacy issues in cities, but those same problems are the key answer to controlling and monitoring elephants out in Africa. With the discovery of drone use to control elephants from destroying crops and hurting people, drone technology has once again proven to be useful in an unconventional manner. https://www.wetalkuav.com/drones-are-being-used-to-ward-off-elephants-because-they-sound-like-bees/2/

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UAVs are transforming the face of modern warfare March 7, 2018 Feilidh Dwyer

A new research paper from Stanford University argues that countries that possess armed drones may change the behavior of other nations, even if they are never used. The low cost and improved technology of predator drones mean it is easy for states to sustain ongoing conflicts, without the push back that comes from the public when sending human troops abroad.

The nature of modern wars is increasingly less likely to involve large-scale ground invasions and is more likely to be sustained periods of occupation and monitoring. Armed drones make it easy for countries to sustain wars for long periods of time and are good for politicians because they are less likely to face unpopularity at home for having boots on the ground.

Zegart has focused her research around the next generation of armed drones – unmanned fighter jets. She interviewed 259 military foreign military officers over a two year period between 2015-17. She says that drones have made it much easier for countries to sustain long-duration conflicts. They provide leaders with near-certain ability to inflict precision punishment and the overall cost of war far cheaper.

At present, just nine countries in the world used drones in combat. Another 20 are working on lethal drone programs, including Russia and China. https://www.wetalkuav.com/uavs-are-transforming-the-face-of-modern-combat/

White House Drafting Bill Against Hostile Drones Andy Pasztor March 6, 2018

Legislation would protect against potential threats from drones operated by 'the clueless, the careless and the criminals'

A drone releases a kevlar net to capture a simulated hostile drone during a product demonstration in Castro Valley, Calif., last year.

BALTIMORE—White House officials are preparing legislation that for the first time would allow federal law enforcement and homeland security to disrupt, take over or even destroy suspected hostile drones in U.S. airspace.

The goal is to break the logjam preventing substantial expansion of commercial uses of unmanned aerial systems because those agencies currently lack authority to disrupt or neutralize suspicious aircraft piloted from the ground.

The Pentagon and the Energy Department, which operates nuclear-warhead manufacturing sites, already have explicit powers to take out suspect or unidentified drones passing over their critical facilities. Michael Kratsios, the White House's deputy technology adviser, said on Tuesday that a bill is now being drafted—and is expected to be unveiled shortly—giving the Federal Bureau of Investigation, the Department of Homeland Security and other civilian agencies similar rights to detect and defeat such threats. https://www.wsj.com/articles/white-house-drafting-bill-against-hostile-drones-1520374739

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FAA to Expand Automated Drone Airspace Authorization System Tests Joanna Crews March 7, 2018 Civilian Agencies, Latest News

The Federal Aviation Administration has announced plans to expand the automated unmanned aerial systems airspace authorization tests into the nationwide level by April 30 through Sept. 13.

Dan Elwell, acting administrator at the FAA, stated the agency's intent to conduct a nationwide beta test for the *Low Altitude Authorization and Notification Capability (LAANC)*. The LAANC is designed to facilitate near real-time airspace authorization request processing to allow compliance with the FAA's Part 107 small drone regulation for UAS operations in areas managed by an air traffic facility.

System feasibility evaluations began with the agency's installation of a prototype LAANC at some air traffic facilities in November while the beta test will cover the incremental

deployment of the system at around 300 air traffic facilities for nearly 500 airports.
http://www.executivegov.com/2018/03/faa-to-expand-automated-drone-airspace-authorization-system-tests/

Google Wants to Make Military Spy Drones Even Smarter Brandon Specktor, Senior Writer | March 7, 2018

Google has partnered with the U.S. Department of Defense to help the agency develop smarter drone software. According to a report from Gizmodo, Google has agreed to provide the DOD with machine-learning software that will help the department's computers better detect objects in surveillance drone footage.

The new partnership is part of a DOD initiative called Project Maven (also known as the Algorithmic Warfare Cross-Function Team). Project Maven aims to improve America's ability to "[win] wars with computer algorithms and artificial intelligence" by rapidly upgrading the military's ability to analyze drone footage. [5 Surprising Ways Drones Could Be Used in the Future]

The project's first goal is to develop artificial intelligence capable of automatically detecting "38 classes of objects" regularly seen in military drone footage, the DOD said. This will ultimately help data analysts parse the "millions of hours of video" captured each year by drones surveilling combat zones in such countries as Iraq and Syria. https://www.livescience.com/61952-google-providing-ai-drone-footage-department-of-defense.html

New Drone America, Kongsberg Geospatial Integration Supports BVLOS Operations Betsy Lillian March 7, 2018

Kongsberg Geospatial, an Ottawa, Ontario-based developer of geospatial visualization software, and Drone America, a Reno, Nev.-based unmanned aircraft systems (UAS) developer, have announced a new technology integration in support of drone operations beyond visual line of sight (BVLOS). The partners have integrated the Kongsberg Geospatial IRIS UAS situational awareness application into Drone America's airspace and sensor awareness system (DAAWS).

Drone America specializes in designing and building long-range, autonomous, multi-mission drones with modular payloads for BVLOS flight operations. Kongsberg Geospatial has developed

a variety of sensor integration and display technologies to provide situational awareness for drone pilots operating BVLOS.

According to the partners, the IRIS display technology enables multiple drones to be managed simultaneously by a single operator and provides real-time calculation of aircraft separation and communications line of sight to enable BVLOS operations. IRIS provides the operator with real-time 2D and 3D visualization of airspace data, as well as geofencing capabilities. https://unmanned-aerial.com/new-drone-america-kongsberg-geospatial-integration-supports-bvlos-operations?utm_medium=email&utm_source=LNH+03-08-2018&utm_campaign=UAO+Latest+News+Headlines

Ford proposes remote drone-tracking system for the FAA

The automaker's affordable solution: Have UAVs flash their ID using anti-collision lights. David Lumb, @OutOnALumb

This week's FAA drone symposium had an unlikely panelist: Ford. The automaker has been working with the agency to figure out how to track UAVs since last year, but unlike dronemaker DJI's proposal to force airborne craft to broadcast their ID and location over radio, Ford wants drones to use their anti-collision lights to flash their ID number in code that would be readable by, of course, a proprietary app.

That would enable bystanders to use their smartphones to report misbehaving UAVs, Ford stated in a blog post, noting that they used this method to reliably identify drones up to 80 feet away during testing. That range could be extended by up to 20 times using commonly-available DSLR lenses, Ford pointed out in the proposal's white paper (PDF).

Light-based identification has its own problems, but at least it would be easier to implement than broadcasting by radio, an approach that could require industry standardization. It's a potentially cheap, efficient solution using equipment people already have (like smartphones), and given that consumers once again have to register their drones with the FAA, those 10-digit ID numbers will be more available. But more interesting is that an automaker is butting in to the drone game, and It's a good bet that Ford has more to offer in the space. https://www.engadget.com/2018/03/07/ford-proposes-remote-drone-tracking-system-for-the-faa/

Predictions for the Worldwide Drone Industry Jeremiah Karpowicz, Commercial UAV News

Global Perspective. Jeremiah produced a report called, Commercial Drone Predictions for 2018. Some of the observations from the report include:

Counter Drone Technology – It will continue to grow into a major subsector of the drone industry. Looking into 2018, the key things to look for are regulations and conversations about how much can people, businesses and governments do to counter drones that may pose a threat to their operations.

Unmanned Traffic Management (UTM) System – Efforts to evolve UTM should gain momentum in 2018, as evidenced by the 50-mile UTM corridor in New York and efforts in Europe. NASA and Gryphon Sensors are key leaders in this area.

High Altitude Long Endurance (HALE) – These systems are gaining interest as they provide one way to extend the mission life of a drone. Some systems can stay aloft for days or weeks.

Automation – Automation is limited by what the technology allows us to do versus what regulation allows us to do. http://droneradioshow.com/bold-predictions-worldwide-drone-industry-jeremiah-karpowicz-commercial-uav-news/

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The Top 20 Drone Service Provider Ranking staffon: March 08, 2018

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DRONE INDUSTRY INSIGHTS

The commercial drone market changed a lot over the last years – we saw how hardware lost its leading position and has been displaced by drone services and drone software solutions.

In this ranking, we display the TOP20 drone-as-a-service companies based on an analysis of 200+ global operating drone service providers. Since the drone industry does not yet offer a solution that can fully incorporate drone services as they currently exist, drone service providers and drone operators working within larger organizations are the ones providing actionable information for clients in agriculture, construction, mining, oil & gas and many other vertical industries.

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TOP20 Drone Operator Ranking 2018
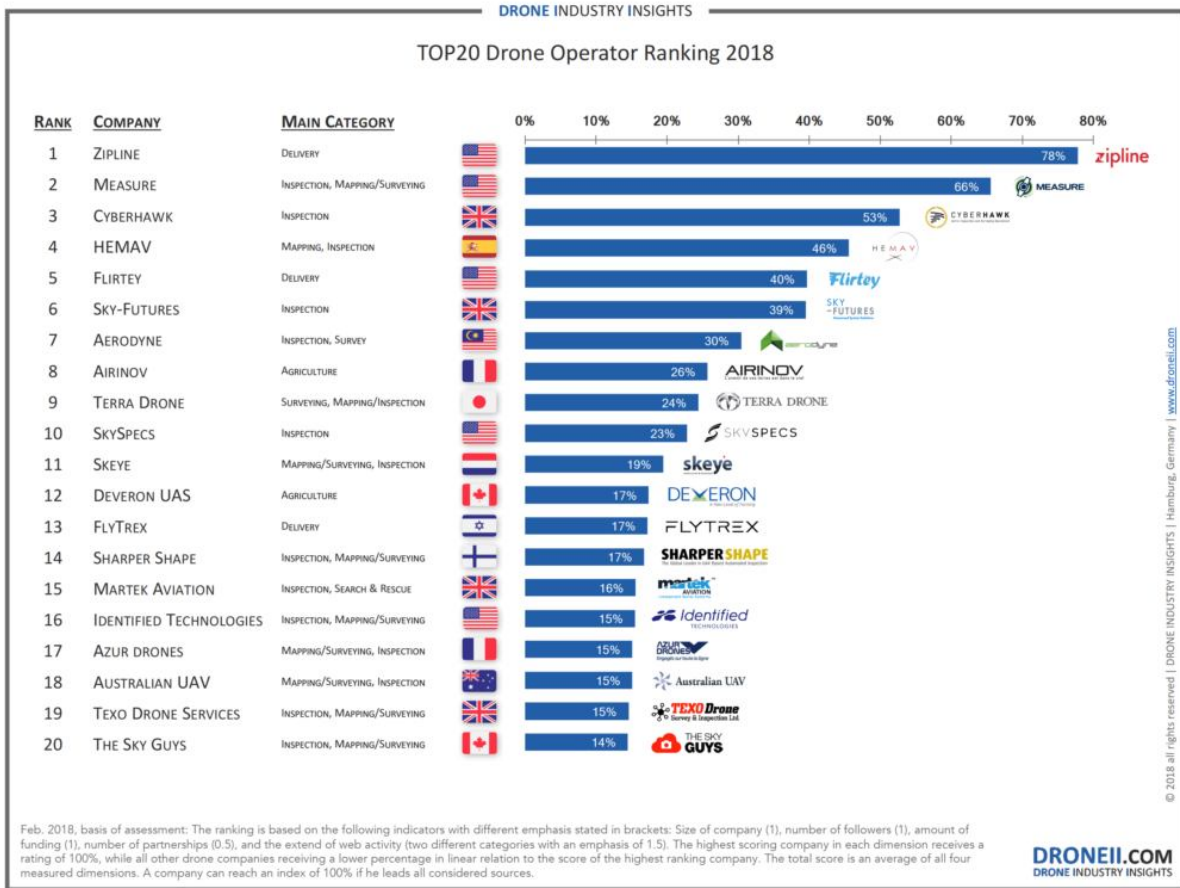
In the TOP50 of our drone service ranking, 40% were from North America, 36% were from Europe, 10% were from MEA (the Middle East and Africa), 6% from Asia, 6% from Oceania, and 2% from South America. This breakout demonstrates the power of the North American and European markets but also proves they are not the only places to find these services.

Additionally, the TOP10 companies in our ranking alone received more than $116 million in funding, while the TOP20 acquired $130 million in total. Clearly, stakeholders both inside and outside of these companies have been able to demonstrate the real and future value of this technology. https://dronelife.com/2018/03/08/top-20-drone-service-provider-ranking/